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**Title:** A pilot study on the effects of telepulmonology in primary care on efficiency and quality of care in the Netherlands

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**Body:** Introduction: Misinterpreting spirometry results can lead to under- and misdiagnosis of obstructive pulmonary diseases. In telepulmonology a general practitioner (GP) digitally consults a pulmonologist. We assessed the effect of the use of telepulmonology (TP) in the daily practice of Dutch GPs on prevented physical referrals and potential quality of care improvement. Methods: GPs accessed a secured web-based teleconsultation (TC) system (KSYOS); filled in the patient data; added a spirogram; optionally added relevant clinical information. This information was sent to the local pulmonologist. The number of prevented physical referrals was measured by asking GPs the following two questions: Before TC(Q1): "Without TP, would you have physically referred this patient?" After TC(Q2): "Do you refer this patient physically?" Quality of care was measured by the percentage of TCs sent for second opinion, the percentage of physical referrals resulting from these TCs and the educational effect experienced by GPs. Results: In total 872 TCs performed from January 2010 until December 2011 were analyzed. Thirty-two percent (n=283) of the TCs were intended to prevent a physical referral (Q1=yes), 70% (n=199) of these were actually prevented. Of all TCs 68% (n=589) were sent for advice or second opinion (Q1=no), 19% (n=111) of these patients were referred after TC. GPs experienced an educational effect in 90% (n=784) of the TCs. Conclusions: Telepulmonology potentially improves efficiency of care by preventing unnecessary physical referrals. Conversely TP can improve quality of care by referral of patients that would otherwise not have been referred and the educational effect experienced by GPs.